March 5, 1946. E. C. JOHNSON 2,396,011

PLURAL COIN CONTROLLED MECHANISM FOR VENDING MACHINES OR THE LIKE

Filed April 29, 1944 4 Sheets-Sheet 1

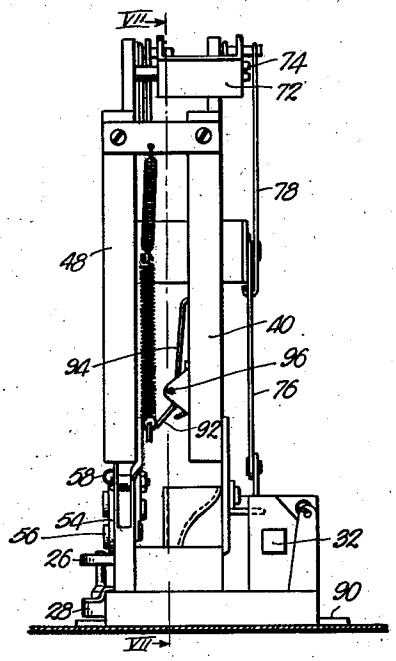

Fig. 1.

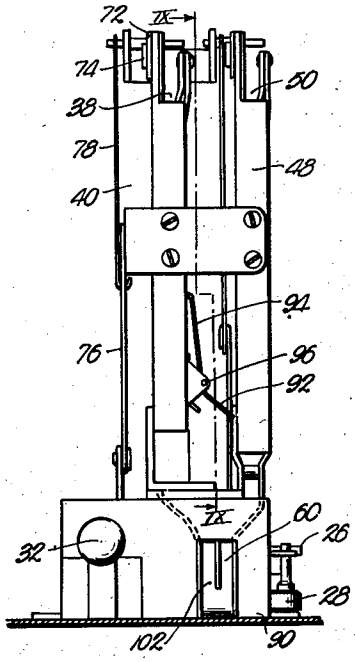

Fig. 2.

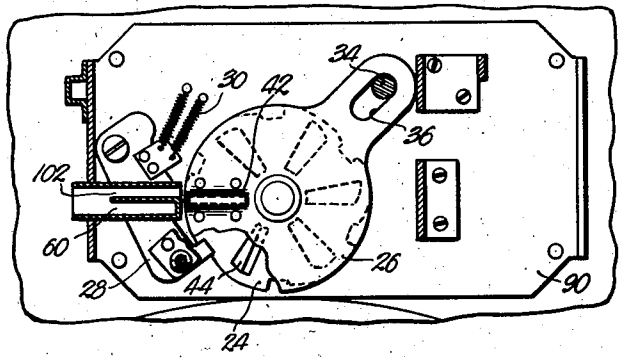

Fig. 8.

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Fig. 3.

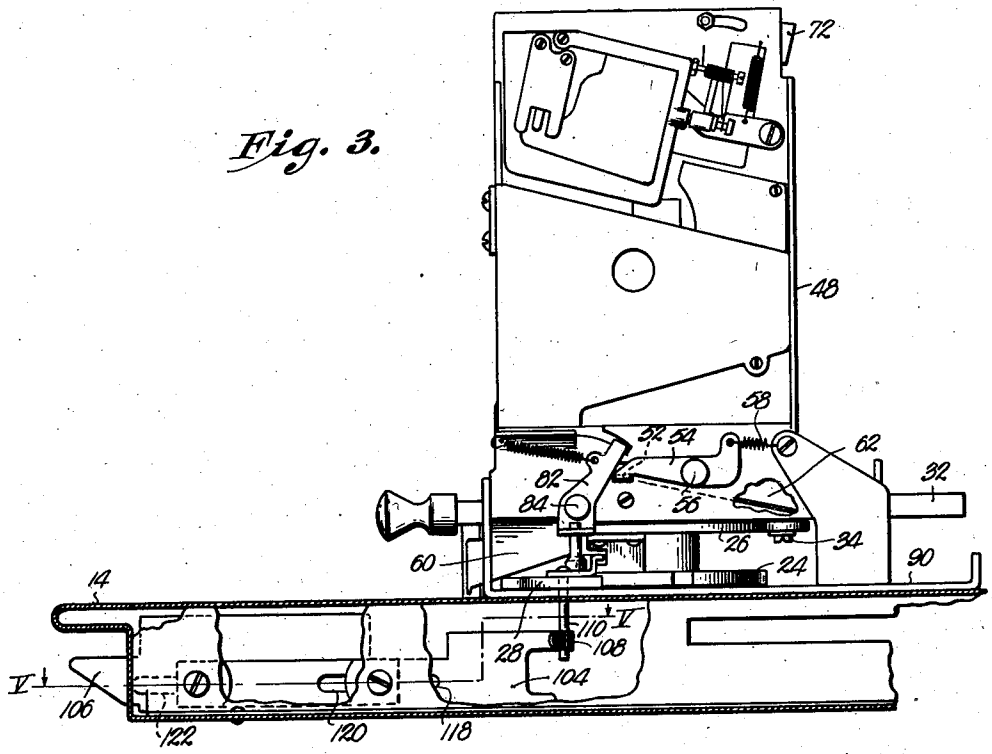
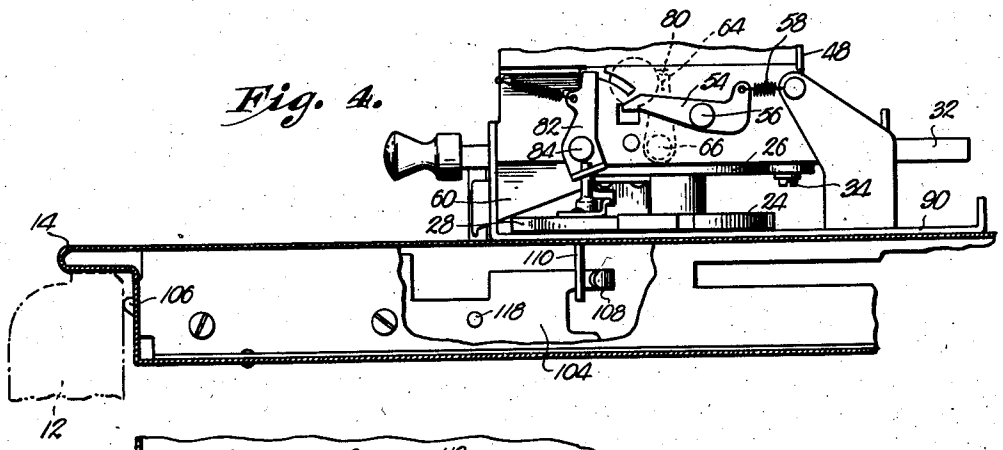


Fig. 4.



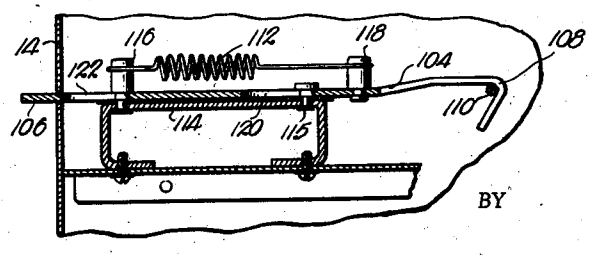


Fig. 5.

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PLURAL COIN CONTROLLED MECHANISM FOR VENDING MACHINES OR THE LIKE

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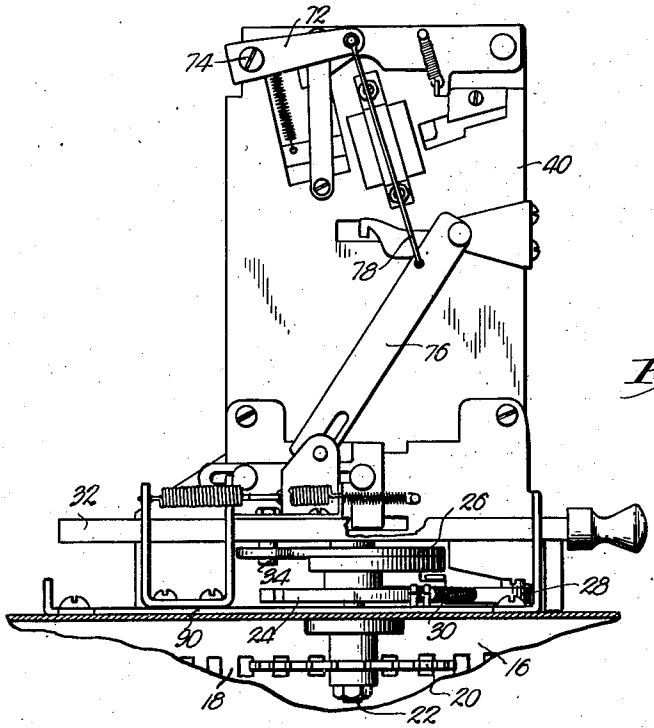

Fig. 6.

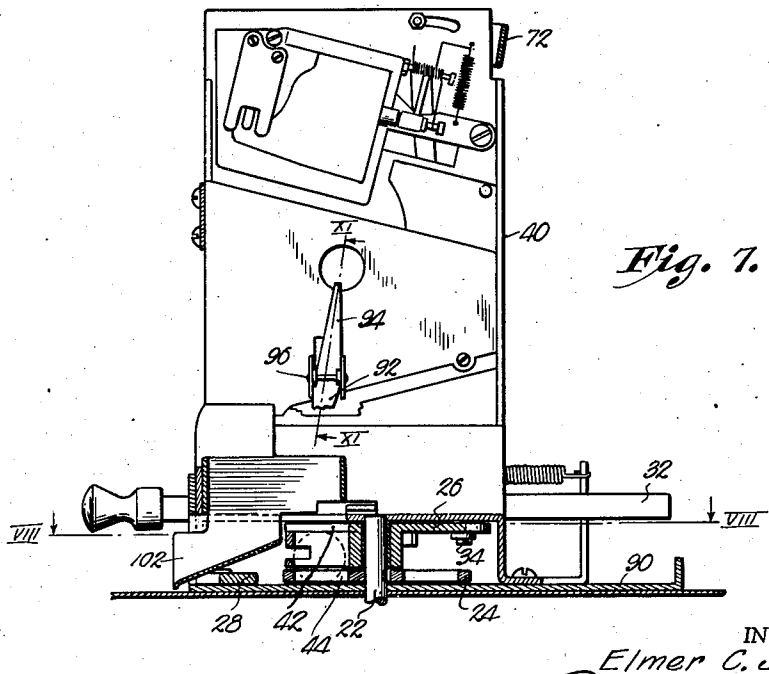

Fig. 7.

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PLURAL COIN CONTROLLED MECHANISM FOR VENDING MACHINES OR THE LIKE

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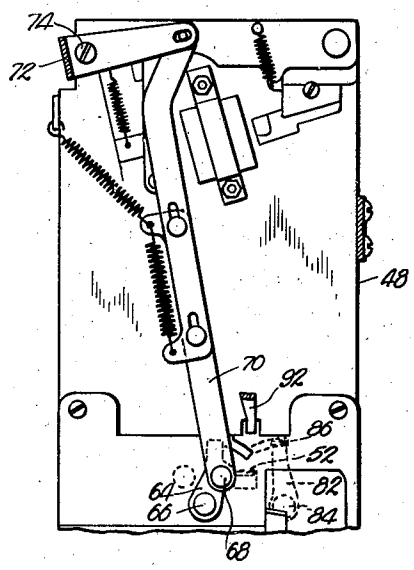

Fig. 9.

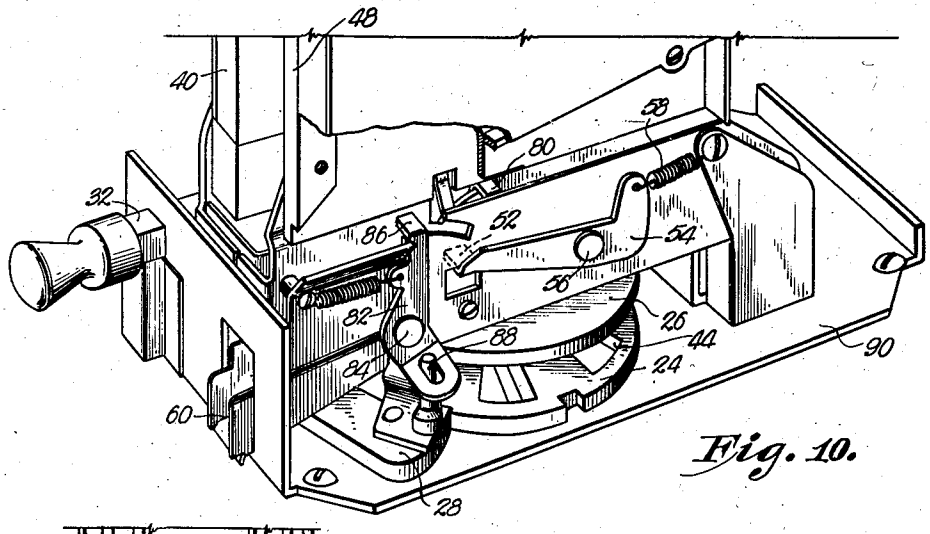

Fig. 10.

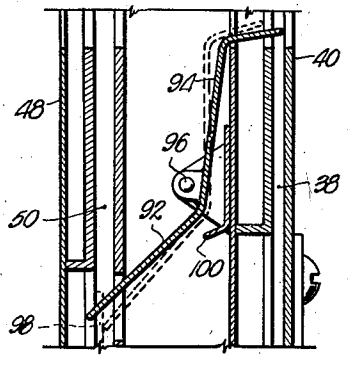

Fig. 11.

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UNITED STATES PATENT OFFICE

2,396,011

PLURAL COIN CONTROLLED MECHANISM FOR VENDING MACHINES OR THE LIKE

Elmer C. Johnson, Kansas City, Mo., assignor to C. Earl Hovey, Kansas City, Mo., as trustee

Application April 29, 1944, Serial No. 533,350

11 Claims. (Cl. 194—84)

This invention relates to vending machines of the character wherein is embodied at least two coin receiving and selecting units, and the primary aim is to provide in such a machine, unique and simple mechanism for precluding the introduction of one coin until another coin has been placed.

This invention has for another important object to provide dual coin controlled mechanism for vending machines, which mechanism includes structure for depositing one of the coins in either of two separate locations, after it has been introduced to one of the coin chutes of the machine, depending upon the presence of another coin in the companion coin chute.

This invention has for a still additional object the provision of a plural coin controlled mechanism for manually manipulable vending machines, which mechanism has means for employing one coin as an interconnecting element and parts for handling the remaining coin in a particular manner, depending upon the presence of the first mentioned coin, said manually manipulable units of the vending machine being formed and disposed to either eject one of the coins or direct the same into a coin box upon actuation thereof.

The invention has for an additional aim to provide a plural coin controlled mechanism for manually operative vending machines that has as a salient feature means for blocking the passage of a coin through a portion of the mechanism until another coin has been introduced thereinto for the purpose of holding the blocking means inoperative, said blocking means being designed to require the presence of more than one coin to open the way for the first mentioned coin.

This invention has for another and very important object to provide improvements to the vending machine disclosed in U. S. Letters Patent No. 2,250,816, issued July 29, 1941, one important improvement thereto being the provision of mechanism automatically operable upon movement of the cover from its normal position on the case to release the locking elements which hold the rotating plate of the cover so that said plate may be free to move when the cover is raised; another important improvement thereto being the mounting of releasing structure on the cover normally closing the open side of the case and engageable by said case when the cover is closed to disengage the mechanical connections between the rotating plate of the cover and the manually manipulable coin controlled mechanism; and a further improvement thereto being the addition of automatic means for disengaging the connection between the coin controlled mechanism and the rotating disc when the cover is lifted for the purpose of allowing free rotation of the cover to reposition its access opening without interference nor regard to the said manually operable coin controlled mechanism.

Other objects of the invention will appear during the following specification, referring to the accompanying drawings, wherein:

Fig. 1 is an edge elevational view of the plural coin controlled mechanism for vending machines made in accordance with the present invention.

Fig. 2 is an elevational view of the opposite edge thereof.

Fig. 3 is a side elevational view of the plural coin controlled mechanism, illustrating the same mounted upon a vending machine in the nature of that disclosed in U. S. Letters Patent No. 2,250,816, and showing means which renders the releasing means between the coin controlled mechanism and the rotating disc inoperative when the cover of the machine is raised.

Fig. 4 is a fragmentary sectional view through a portion of the vending machine and showing the parts of the plural coin control in a position different from that illustrated in Fig. 3.

Fig. 5 is a fragmentary sectional view taken on line V—V of Fig. 3.

Fig. 6 is a side elevational view of the coin controlled mechanism showing the drive means that is actuated when the operator manipulates the mechanism.

Fig. 7 is a fragmentary vertical sectional view taken on line VII—VII of Fig. 1.

Fig. 8 is a horizontal sectional view taken on line VIII—VIII of Fig. 7.

Fig. 9 is a vertical fragmentary sectional view taken on line IX—IX of Fig. 2.

Fig. 10 is an enlarged fragmentary detailed perspective view of the lower portion of the plural coin control, illustrating the parts for directing the travel of one of the coins after it has been introduced; and

Fig. 11 is an enlarged fragmentary detailed sectional view taken on line XI—XI of Fig. 7.

The vending machine having the plural coin controlled mechanism embodying the present invention and made as illustrated in the accompanying drawings, may be in the nature of that illustrated and described in U. S. Letters Patent No. 2,250,816. The vendible commodity is stored in a case 12 having one open side normally closed by lid 14, which rotatably supports a plate 16, the depending annular flange whereof has a

rack 18 in mesh with pinion 20 mounted on shaft 22. Step-by-step movement is imparted to rotatable plate 16 so that the access opening thereof is positioned over one vendible article at a time.

As disclosed in said Letters Patent (#2,250,816), a coin is employed to couple ratchet 24 and plate 26, the former being arrested after each operation by dog 28, yieldably held in place by springs 30. A reciprocable plunger 32 has connection with plate 26 through the medium of pin 34 and slot 36 and when a coin is introduced into chute 38, formed as a part of slug rejecting mechanism 40, it will enter the slot 42 of plate 26 and one of slots 44 of ratchet 24 to interconnect these parts. When plunger 32 is moved outwardly by the operator, pinion 20 will receive movement and rotate plate 16.

With the parts just set forth and upon the type of machine shown in said Letters Patent, is combined a second slug rejecting mechanism 48, wherein is formed a chute 50 for the reception of an additional coin. For purpose of completely describing the invention, it will be assumed that the plural coin controlled mechanism must receive both a penny and a nickel before it is possible to operate the machine and receive an article of merchandise therefrom. Chute 38, therefore, receives a nickel and chute 50 receives a penny.

Because the nickel forms the interconnecting medium between parts 24 and 26, it is desirable to create the mechanism so that at least one penny must be introduced before a nickel can move to operative position. Slug ejecting mechanisms 40 and 48 are mounted in side-by-side relation to the end that they may be suitably housed in a case of minimum size. The case, not here shown, has slots in alignment with chutes 38 and 50, and when a penny is introduced, it will pass through slug ejecting mechanism 48 for analysis, and being a genuine coin, will migrate to a place upon seat 52 of lever 54. This lever is pivotally mounted as at 56 and held in a normal position by a spring or analogous means 58. Seat 52 is formed by an inturned portion of lever 54 and this portion projects across the lower portion of chute 50, as illustrated particularly in Fig. 10.

Chute 50 communicates with its lateral branches 60 and 62 to the end that the coin, after it has come to rest on seat 52, may either be ejected to the user of the machine through eject branch 60, or deposited in a coin box through branch 62. A kick-out dog 64 pivotally mounted as at 66, is attached as at 68 to arm 70 forming a part of the scavenger mechanism of the slug rejectors 40 and 48. This arm 70 is attached to yoke 72 pivotally mounted as at 74 and connected to rocker 76 by bar 78. When rocker 76 is moved by pulling plunger 32, arm 70 will move kick-out dog 64 so that the inturned end 80 thereof will strike the coin resting on seat 52 and force the same in one direction, i. e. outwardly through ejecting branch 60. Thus, if a penny is introduced and the operater fails to place a nickel, pulling of plunger 32 will merely return the penny. If, however, a nickel is passed into the operative position interconnecting parts 24 and 26 through chute 38 after a penny has been deposited, a pulling of plunger 32 will rotate plate 26 where the nickel will raise dog 28 from its position in ratchet 24 and allow movement to be imparted to plate 16. As this takes place, dog 28 is moved outwardly to actuate another kick-out dog 82 pivotally mounted as at 84 and having an inturned head 86. Dog 82 is connected to dog 28 through the medium of a pin and slot structure 88, as illustrated in Fig. 10. Thus, the penny is forced from seat 52 into branch 62.

When the penny on seat 52 is moved in either direction, as above described, lever 54 is forced down to permit the coin to escape from beneath heads 80 or 86 as the case may be. As ratchet 24 is being moved to the end of a step, dog 28 will be drawn back into the next succeeding tooth of ratchet 24 when the nickel is dropped into the coin chute, not here shown, but which is below plate 90 mounted upon lid 14 as illustrated in Figs. 3 and 4. The dropping of the nickel will occur about the same time that the penny is forced from seat 52.

After the penny has been positioned upon its seat 52 and as it remains thereon, it will engage the downwardly and outwardly projecting means on part 92 on gate 94 to move said gate around its pivotal support 96 and withdraw the same to the dotted line position shown in Fig. 11, in order that a nickel may pass through chute 38. The penny is illustrated in dotted lines of Fig. 11 and designated by the numeral 98, and it will be obvious that the presence of the penny will open gate 94 to permit the nickel to pass into its normal position between ratchet and plate 24 and 26 respectively.

A stop 100 limits the movement of part 92 and gate 94, and in the form of the structure illustrated in detail in Fig. 11, the action of gravity will maintain gate 94 in its normal position intersecting chute 38 to preclude passage of a coin therethrough. When gate 94 is in its normal position the coin will be returned from within chute 38 because gate 94 will divert the coin into a return slot 102 where it may be recovered and introduced after a coin has been placed in chute 50. It is preferable to have return branch 60 and return slot 102 merge into a common mouth to avoid confusion.

The length of means 92 which is here shown to be in the nature of an extension from gate 94, may be altered to require more than one coin 98 to open the gate and allow a coin to pass through chute 38. Thus, if two pennies must be collected as a tax, for example, the operation of the equipment cannot occur until two pennies and another coin, such as a nickel, are fed into the mechanism. Extension 92 is bendable, and therefore, the equipment may be made to operate only when two or more pennies are introduced by the operator merely arching or bending member 92.

Dog 28 is normally in engagement with ratchet 24 to preclude turning of plate 16, but since the access opening needs to be specially located when the case 14 is refilled. it is desirable to have plate 16 freely movable when lid 14 is raised from its position over the open side of case 12. Such object of the invention is fulfilled by the use of slide 104 having a head 106 disposed as shown in Figs. 3 and 4, and a hook 108 at its inner end to move into and out of engagement with a depending pin 110, secured to dog 28. A spring 112 having one end secured to bracket 114 through the medium of pin 116, has its other end fastened to slide 104 by pin 118. Slide 104 is reciprocably carried by bracket 114 by having slots 120 and 122 in engagement with a pin 115 and 116 respectively.

When the lid is closed, hook 108 is out of engagement with pin 110 but when the lid is opened to permit spring 112 to draw slide 104 in one direction and against pin 110, the force will disengage dog 28 from the notches in ratchet 24.

This ratchet together with pinion 20 and plate 16, will freely rotate without dog 28 snapping to and from a place within the teeth of the ratchet. When the plate 16 on cover 14 is re-set so that the access opening is again at its point of beginning, a closing of lid 14 will automatically allow dog 28 to return to its operative condition and position against ratchet 24.

From the foregoing it is obvious that equipment of the character described, is useful when a specified amount is to be collected for a vendible commodity, which amount cannot be represented by a single coin of standard denomination. It is also clear from the detailed description, hereinabove set down, that any number of pennies may be collected as a tax and that while the invention has been described with regard to the use of pennies and nickels, coin of different denominations may be handled without departing from the spirit of the invention or scope of the appended claims.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. In a vending machine of the character described, manually manipulable coin controlled mechanism for imparting movement to parts of the vending machine including a pair of coin chutes; a gate normally closing one of the chutes; and means carried by the gate for engagement by a coin in the other chute for maintaining the gate out of said one chute until the mechanism is operated.

2. In a vending machine of the character described, manually manipulable coin controlled mechanism for imparting movement to parts of the vending machine including a pair of coin chutes; a gate normally closing one of the chutes; and means carried by the gate for engagement by a coin in the other chute for maintaining the gate out of said one chute until the mechanism is operated, said manually manipulable mechanism having parts shiftable by the operation thereof for ejecting the coin from the said other chute.

3. In a vending machine of the character described, manually manipulable coin controlled mechanism for imparting movement to parts of the vending machine including a pair of coin chutes; a gate normally closing one of the chutes; and means carried by the gate for engagement by a coin in the other chute for maintaining the gate out of said one chute until the mechanism is operated, said manually manipulable mechanism having parts shiftable by the operation thereof for ejecting the coin from the said other chute, said gate having yieldable means for holding the same in the normal, chute-closing position.

4. In a vending machine of the character described, manually manipulable coin controlled mechanism for imparting movement to parts of the vending machine including a pair of coin chutes; a gate normally closing one of the chutes; and means carried by the gate for engagement by a coin in the other chute for maintaining the gate out of said one chute until the mechanism is operated, said coin engageable means on the gate being adapted for adjustment where more than one coin is required to be present in the said other chute before the gate is withdrawn from the said one chute.

5. In a vending machine of the character described, manually manipulable coin controlled mechanism for imparting movement to parts of the vending machine including a pair of coin chutes; elements connectable by a coin passing through one of the chutes; a gate normally closing said one chute; means carried by the gate for engagement by a coin in the other chute for maintaining the gate out of said one chute; and structure for ejecting the coin from the said other chute when the connectable elements are shifted by manual manipulation after a coin has been introduced thereto through the said one chute.

6. In a vending machine of the character described, manually manipulable coin controlled mechanism for imparting movement to parts of the vending machine including a pair of coin chutes; elements connectable by a coin passing through one of the chutes; a gate normally closing said one chute; means carried by the gate for engagement by a coin in the other chute for maintaining the gate out of said one chute; and structure for ejecting the coin from the said other chute when the connectable elements are shifted by manual manipulation after a coin has been introduced thereto through the said one chute, said structure including a yieldable seat for the coin and pushers disposed to force the coin from said seat in either of two directions.

7. In a vending machine of the character described, manually manipulable coin controlled mechanism for imparting movement to parts of the vending machine including a pair of coin chutes; elements connectable by a coin passing through one of the chutes; a gate normally closing said one chute; means carried by the gate for engagement by a coin in the other chute for maintaining the gate out of said one chute; and structure for ejecting the coin from said other chute when the connectable elements are shifted by manual manipulation after a coin has been introduced thereto through the said one chute, said structure including a yieldable seat for the coin and pushers disposed to force the coin from the seat in either of two directions, one of said pushers being operably coupled to the connectable elements whereby the coin on the seat is forced therefrom in one direction when the coin from the said one chute has operably connected the said elements.

8. In a vending machine of the character described, manually manipulable coin controlled mechanism for imparting movement to parts of the vending machine including a pair of coin chutes; elements connectable by a coin passing through one of the chutes; a gate normally closing said one chute; means carried by the gate for engagement by a coin in the other chute for maintaining the gate out of said one chute; and structure for ejecting the coin from said other chute when the connectable elements are shifted by manual manipulation after a coin has been introduced thereto through the said one chute, said structure including a yieldable seat for the coin and pushers disposed to force the coin from said seat in either of two directions, one of said pushers being operably coupled to the connectable elements whereby the coin on the seat is forced therefrom in one direction when the coin from the said one chute has operably connected the said elements, the other of said pushers being operably connected to the manually manipulable portion of the said mechanism for forcing the coin from the seat in the other direction upon movement of said mechanism when no coin is joining the connectable elements.

9. In a vending machine of the character described, manually manipulable coin controlled mechanism for imparting movement to parts of the vending machine including a pair of coin

chutes; elements connectable by a coin passing through one of the chutes; a gate normally closing said one chute; means carried by the gate for engagement by a coin in the other chute for maintaining the gate out of said one chute; and structure for ejecting the coin from the said other chute when the connectable elements are shifted by manual manipulation after a coin has been introduced thereto through the said one chute, said structure including a yieldable seat for the coin and pushers disposed to force the coin from said seat in either of two directions, one of said pushers being operably connected to the manually manipulable portion of the said mechanism for forcing the coin from the seat in one direction upon movement of said mechanism when no coin is joining the connectable elements.

10. In a vending machine of the character described, manually manipulable coin controlled mechanism for imparting movement to parts of the vending machine, including a pair of coin selectors disposed in side-by-side relation, each having a coin chute formed therein; a gate normally closing one of said coin chutes; means carried by the gate and extending into the coin chute of the other coin selector for engagement by a coin entering the chute of the said other selector; a seat for arresting the coin in the chute of the other selector where it will be in engagement with the means carried by the gate to hold the gate out of the said one coin chute; a pusher to return the coin to the user upon manual manipulation of the mechanism and in the absence of a coin in the said one coin chute; and parts for returning the gate to its normal position when the coin in the said other chute has been returned to the user.

11. In a vending machine of the character described, manually manipulable coin controlled mechanism for imparting movement to parts of the vending machine, including a pair of coin selectors disposed in side-by-side relation, each having a coin chute formed therein; a gate normally closing one of said coin chutes; means carried by the gate and extending into the coin chute of the other coin selector for engagement by a coin entering the chute of the said other selector; a seat for arresting the coin in the chute of the other selector where it will be in engagement with the means carried by the gate to hold the gate out of the said one coin chute; a pusher to force the coin from said seat after a coin has been introduced into the said one chute and upon manual manipulation of the mechanism; and parts for returning the gate to its normal position when the coin is forced from said seat.

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